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The Radio Amateur and His Accomplishments

By CHAS. E. BEARD '27



IN this brief discussion, it is my desire to throw a little light on the radio amateur and his work. By radio amateur, I do not mean the large army of broadcast listeners—or B. C. L.'s, as they are called—but rather the real dyed-in-the-wool "ham." The B. C. L. of the ordinary type has no interest in radio other than listening to the speech and music, and will never graduate into the class of the real amateur. Not so with the "ham." He is not content with merely listening, but he must have some means whereby he can also make himself heard. Thus we have the transmitting amateur, he who can sit in his room and by merely operating a telegraph key—in connection with the necessary transmitting apparatus—talk with his friends whom he has never seen, on the other side of the continent, in Canada, and even across the wide expanse of the Atlantic Ocean. Toward a description of this latter type the contents of this article will be directed.

One of Webster's definitions of an amateur is, "One not rated as a professional." This may be a very good definition of the word, but with respect to the radio amateur, he is most certainly amateur in name only. Although he may not be classed as a professional, there are many men in professional radio whom some of the amateurs could best in every way. Not only that, but from the ranks of the amateur radio operators have come many of our leading radio engineers of the present day—DeForest, Armstrong, Reinartz, Harkness, Yates, Ballentine and many others. All have risen from the ranks.

Let us take a look into the operating "shack" of the average amateur, which may be the dining room, bed room, attic, or a well-built or hastily-constructed shed in the back yard. Here we are very likely to find a sundry display of apparatus, covering the entire field of radio. Usually, though, the apparatus is arranged neatly on bakelite panels, readily accessible for change, experiment or repair. The power of the equipment usually varies in accordance with the pocketbook of the owner. Some have a five-watt transmitter, while others have thousand-watt transmitters.

Most amateur operators confine their operations to between ten-thirty at night and any time in the morning that occasion demands. Perhaps you are wondering what the attraction is that can so closely hold the attention of this vast army of operators for so long a period of time. It is simply this—the annihilation of distance. Nothing pleases an "op" more than to get a card from a distance of 2000 miles or more, reading, "Yr sigs hrd hr, pse QSL"—meaning, "Your signals have been heard here, please reply." The reply is sent, the transmission verified, and another distance record established. But this is not all; the amateur loves "to chew the proverbial rag." Any night will find him engaged in this pastime with some distant, unseen friend, and on a variety of topics. This "rag chewing" oftentimes ends in a hot argument on the relative merits of a certain piece of apparatus, or some similar

subject. In addition to this, many thousands of messages are relayed to all parts of this large continent of ours, free of charge to the public, who need but to hand the message to an operator who will relay it to its destination and feel highly insulted if you attempt to pay him for the service. It is in this manner that the amateurs justify their existence.

Then there is the more serious side. Perhaps some one will ask, "Of what true value is he?" This question was very adequately answered during the late war. While the other nations had to take inexperienced men and put them through a period of schooling before they were fit for service as radio operators, the United States had at her command expert operators by the score, ready and willing to step in and do their share. This the radio amateur did in a manner befitting a loyal American.

Throughout the duration of the war all amateur activities were suspended, but upon the re-opening of the stations things began to take on their normal state again. Prior to this time almost all transmitting had been done by spark, using damped waves, but now a new method was coming into use in the form of the vacuum tube or continuous wave transmitter, which made possible the radio telephone on a much larger scale. The "ham" was quick to realize the possibilities of such a system, and thereupon set about to develop it for his own use and satisfaction. The result was a short wave C. W. transmitter and the radio telephone. Hence the present-day broadcasting station is in a large measure the product of the amateur radio laboratory, enlarged upon by commercial companies.

So far the the use of the radio telephone for broadcasting purposes is concerned, the amateur is not particularly interested. To be sure the operators of many of the broadcasting stations are former amateur operators, and in a large number of cases of this kind the station is an efficient one and is all that could be expected. But there is the other class of stations, handled by inexperienced operators who know practically nothing about the actual working of the set—something that is an absolute essential in order to get the best results—and who allow practically anything to go out in the air, with little regard as to how it will sound to the listener-in with his receiving set. These operators allow the hum of the motor-generator to be broadcast along with the so-called music, which itself is often very poorly modulated, and which causes both the speech and music to have a "mushy" sound. These things naturally excite a storm of derision, not only against the guilty station, but against radio as a whole, and it is these things, together with his treatment at the hands of the broadcast listener, that have so hardened the amateur operators against broadcasting. Most of the B. C. L.'s—especially the older people—have the idea that the amateur is a nuisance and should be eliminated altogether, so they can enjoy the programs undisturbed. This naturally arouses the ire of

the amateur, especially after he has given to the listeners the major portion of his evening, until ten-thirty. This still did not satisfy some, and many have been the hot word battles between the two factions.

Then in regard to the matter of the amateur's interfering with the programs, let it be said that in a great many cases the source of the interference is not with the amateur station at all, but comes from commercial and ship stations. This is easily discernible when we stop to think that amateur transmission is carried on on a wavelength below 220 meters and the wavelength band for broadcasting stations extends from about 250 meters on up to around 500 meters. An increase of 30 meters above his authorized wavelength would not, in the majority of cases, be tolerated by either the amateur himself or the Supervisor of Radio. The broadcast listeners have had it instilled into them through the medium of some of the popular radio magazines that when any code is heard, it, without the slightest shadow of a doubt, originated in an amateur station. This idea is indeed an hallucination.

Several times during the past two years the amateur radio man has had opportunity to help out in storm and flood disasters. He has always performed his part well. It was at times when the storm and flood had torn down the telegraph and telephone lines that the services of the amateur were needed the worst. In cases like this the amateur performed all manner of services with his apparatus, transmitting and receiving reports, and directing the work of reconstruction. In one or two cases on record he even filled the capacity of train dispatcher, with the regular railroad dispatcher at his side to assist. In one emergency such as that mentioned above, an amateur operator in one of the Middle Western states remained at his set for a period of forty-eight hours doing work of this nature.

Due to such incidents as these the American Railway Association has taken an interest in the activities of these stations and has requested the establishment of storm relay routes to aid the railroads in case of an emergency.

Sufficient proof warranting his existence and proving that the amateur is recognized by the higher powers is shown in the friendly relations existing between this body and the Department of Commerce. This department has repeatedly helped the amateur, and stands ready at all times to lend support. Indeed, it is largely through their assistance that amateur radio has been able to enjoy the privileges it has experienced in this country. Not only the Department of Commerce, but also the Bureau of Standards, has taken an interest in amateur activities. Just recently the bureau ran off a series of tests whereby those who wished might calibrate their home-made wavemeters and receiving sets. So it would seem that when these departments give of their valuable time to aid the amateur in his work, he is at least a worthwhile utility.

It has been said that organization is essential to success. Organization is by no means lacking in radio circles. We have The American Radio Relay League, The National Amateur Wireless Association, The Alpha Delta Alpha Radio Fra-

ternity, and hundreds of local clubs, all composed of the highest type of amateurs. These organizations are performing a wonderful work in all parts of the country.

Of these organizations, The American Radio Relay League is the most prominent. This league has for its president Hiram Percy Maxim, an accomplishment that any organization could well be proud of. The A. R. R. L. has indeed done more for the good of amateur radio than any other similar organization. It has banded together the operators all over the United States and Canada, and encourages the relaying of friendly messages and the development of short-wave radio in both transmission and reception. The A. R. R. L. publishes its own magazine, known as QST, and in this manner dispenses red-hot, practical information on subjects of interest to every amateur. This league also has its own attorney, on whom members can rely for expert advice in connection with any legal difficulties that might arise.

The local clubs usually found in all the large cities also accomplished wonderful results in organization, and deserve a great deal of credit. Local clubs have featured quite strongly in the settlement of disputes with the broadcast listeners.

At the present time amateur radio has taken on international proportions, as the young men of foreign countries take up the work. Just recently two amateur stations, 1MO, in West Hartford, Conn., and 1XAM, in South Manchester, Conn., carried on direct two-way communication with French 8AB in the southern part of France, a distance of some 3400 miles across the Atlantic and part of France.

But this is not all. 7HGG, in Tacoma, Wash., has succeeded in establishing two-way communication with Japan, a distance of 4650 miles, and west coast amateurs are constantly being heard in Australia and New Zealand by the amateurs of those countries.

All of these records have been accomplished on the short waves and low power which are the lot of the amateur, and in view of this fact they are deeds of which every man in the great amateur fraternity, may well be proud.

Perhaps most of you are familiar with the MacMillan arctic expedition, now in the Far North and frozen in for the winter at Refuge Harbor, North Greenland, 600 miles from the north pole. On this trip into the North, MacMillan took with him a complete radio transmitting and receiving set, and this for a twofold purpose—to relieve the terrible loneliness of their long stay in the arctic regions by receiving the broadcasting and latest news from the outside world, and to conduct tests on the effect the northern lights would have on the transmission and reception of radio signals. MacMillan requested the American Radio Relay League to select one of their members to accompany the expedition as radio operator. The lucky man was Donald Mix, 1TS, of Connecticut. Since the expedition set sail, it has rarely been out of communication with the outside world, except when weather conditions were such that it was im-

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possible to establish contact. Messages to and from the polar expedition have all been handled by amateur stations of the A. R. R. L. scattered throughout the United States and Canada. In doing this the amateur adds another achievement to the already long list.

In conclusion it might be well to mention the fact that the majority of receiving sets now on the market are the results of the ingenuity of former amateurs who are still amateurs at heart and even now delight in "pounding brass" in a real "ham shack." To be sure the radio amateurs, like everything else, have their black sheep, but they soon drop out or abide by the decision of the majority, and thus there is maintained a congenial and likable bunch of men and young men who will fight to the last straw to maintain a principle.